

Abstract

The present invention provides an apparatus, system, and method of utilizing a Home Power Unit ("HPU") which functions as a battery charger for a Hybrid Electric Vehicle ("HEV") or as a generator, utilizing the HEV's electrical power to operate external electrical devices. In its simplest form, the HPU comprises a Transformer, inverter means, rectifier means, a control unit, connection means to the HEV and external electrical loads or sources and switching means to change operation between charger and generator function. Alternative embodiments of the present invention utilize the HEV's existing components thereby avoiding component redundancy within the HPU. Specifically, in the first alternative embodiment, the inverter means are utilized within the vehicle, therefore, requiring only filter and transformer to be added to the vehicle. In the second alternative embodiment, the vehicle's DC-to-DC Converter is utilized as opposed to implementing a transformer. Therefore, only an inverter and filter are added to the system.

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